

REMARKS

Claim status

Claims 1-6 and 8-17 were currently pending at the time of the outstanding Office action. No claims are amended herein. Claims 1-6 and 8-17 are currently pending in the application.

Section 112 rejections

In the current Office action, claims 1-6 and 8-17 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The Examiner states that independent claim 1 recites “automatically time-centering” which is not defined in the specification.

Applicants respectfully traverse the foregoing rejections in view of the above pending claims and for reasons set forth hereafter.

The idea that the physiological signal of the claimed invention of claim 1 is automatically time-centered in a time window is well supported by the specification. The following refers to the substitute specification of the present application:

The entire specification is written in the context of implantable medical devices such as cardiac pacemakers and defibrillators. All internal functions of such devices are inherently automatic. For example, paragraph [0002] of the present application states:

“Physiological events give rise to physiological signals or themselves represent signals, on the basis of which they can be classified. The classification of physiological events or signals is useful in particular in relation to implantable medical devices such as for example cardiac pacemakers or implantable defibrillators (emphasis added) in order to distinguish events requiring treatment from those which are not in need of treatment, or events in respect of which different treatments are indicated. On the basis of the classification procedure the implantable medical device is put into the position of automatically triggering (emphasis added) off the treatment which is possibly required.”

Paragraph [0016] of the present application states:

“In the apparatus according to the invention, it is possible to connect upstream of the transformation unit an adjusting unit for centering the physiological signal in a time window of predetermined window width (emphasis added) and for outputting the centered physiological signal to the transformation unit in order to achieve a unitary input format the physiological signals which occur.”

Centering a physiological signal in a time window of predetermined window width is indeed “time-centering”, and such “time-centering” may indeed inherently be “automatic” in the context of the subject matter of the present application with respect to, for example, cardiac events. Referring to Fig. 1 of the present application, the “time-centering” is taking place in the adjusting/standardizing stage 28 which is internal to the signal preparation unit 20. The only input to the signal preparation unit 20 shown in Fig. 1 is the physiological signal input ‘A’. No type of manual (non-automatic) adjustment input is shown or discussed. Therefore, the time-centering performed by the adjusting/standardizing stage 28 within the signal preparation unit 20 is inherently automatic.

For example, Paragraphs [0029] and [0030] of the present application state:

“If the detection stage 26 detects an event it outputs a trigger signal (triggering signal) to the adjusting/standardizing stage 28 which triggers adjustment and/or standardization of the physiological signal. If the adjusting/standardizing stage 28 receives a trigger signal from the detection stage 26, the underlying IEGM is detected in an event window with a predetermined window width which is generally 64 sampling steps, and centered in the window.”

Such triggering is inherently automatic and the triggered adjustment refers to centering in a time window.

Furthermore, paragraph [0042] of the present application states:

“Wavelet transformation however is not invariant in relation to a time shift in the input signal in the signal window (emphasis added), that is to say the result of transformation changes if the maximum of the amplitude is moved forward or back by one or more sampling steps in the signal window. Consequently the values of the coefficients which are outputted by the transformation unit and which are of substantial significance for classification can fluctuate. The

degree of fluctuation depends on the accuracy of centering of the input signal in the signal window (emphasis added).

Also, paragraph [0050] of the present application states:

“...upon centering in the time window”...

Therefore, it is clear that the specification of the present application clearly describes centering of a physiological signal in a window in the time dimension. Furthermore, it is clear, within the context of the specification of the present application, that such a centering may indeed be automatic.

Applicants respectfully request that the rejection of claims 1-6 and 8-17 under 35 U.S.C. 112, first paragraph, be removed.

Section 103 rejections

In the current Office action, claims 1-3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Esteller (US 6,594,524), hereinafter Esteller, in view of Voelz (US 4,779,100), hereinafter Voelz. The Examiner finds no recitation of “automatically time-centering a physiological signal” in Applicants’ specification and thus considers the Applicants’ argument moot.

Applicants respectfully traverse the foregoing rejections in view of the above pending claims and for reasons set forth hereafter.

Esteller does not teach or suggest an adjusting unit for automatically time-centering a physiological signal with respect to the time dimension in a time window of predetermined window width in the time dimension as does the claimed invention of claim 1. Furthermore, Voelz does not teach or suggest an adjusting unit for automatically time-centering a physiological signal with respect to the time dimension in a time window of predetermined window width in the time dimension as does the claimed invention of claim 1.

Instead, Voelz describes being able to manually adjust either of two potentiometers. The first potentiometer provides adjustment of an amplitude of a signal (sensitivity), and the second

potentiometer provides adjustment of a vertical position of the signal on a display (balance). Neither the sensitivity potentiometer nor the balance potentiometer of Voelz provides adjustment in the time dimension. The sensitivity potentiometer provides adjustment of the amplitude of the signal and the balance potentiometer simply allows a user to move the signal vertically up or down on the display. Examples are shown in Fig. 4 of Voelz and described in column 5, lines 38-48. Referring to Fig. 4 of Voelz, the horizontal dimension is the time dimension. No adjustment is made in this horizontal time dimension. Adjustments are only made in the vertical dimension which is an amplitude dimension and a vertical display dimension. The monostable multivibrator of Voelz simply provides a pulse signal which is displayed below the physiological signal to indicate when one of the sensitivity potentiometer or the balance potentiometer has been adjusted. Again, no adjustment in the time dimension is taking place in Voelz. Furthermore, the adjusting of sensitivity (amplitude) and/or balance (vertical display position) of the signal in Voelz is done manually by a user manipulating the potentiometer(s). The claimed subject matter of independent claim 1 automatically time-centers a physiological signal in a time window in the time dimension without any user intervention.

Furthermore, Applicants respectfully submit that there is clear support in the specification for the language, "automatically time-centering the physiological signal", as described above herein for the rejection under 35 U.S.C. 112, first paragraph.

Therefore, in view of at least the foregoing, it is respectfully submitted that independent claim 1 defines allowable subject matter. Furthermore, since claims 2-3 depend either directly or indirectly from independent claim 1, it is respectfully submitted that claims 2-3 define allowable subject matter as well. Applicants respectfully request that the rejection of claims 1-3 under 35 U.S.C. 103(a) be removed.

In the current Office action, claims 4-6, 8, 9, and 11-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Esteller in view of Voelz and further in view of Echauz et al. (US Patent No. 6,678,548), hereinafter Echauz. The Examiner finds no recitation of

“automatically time-centering a physiological signal” in Applicants’ specification and thus considers the Applicants’ argument moot.

Applicants respectfully traverse the foregoing rejections in view of the above pending claims and for reasons set forth hereafter.

As described above, Esteller and Voelz do not teach or suggest an adjusting unit for automatically time-centering a physiological signal with respect to the time dimension in a time window of predetermined window width in the time dimension as does the claimed invention of claim 1. Furthermore, Echauz does not teach or suggest an adjusting unit for automatically time-centering a physiological signal with respect to the time dimension in a time window of predetermined window width in the time dimension as does the claimed invention of claim 1.

Furthermore, Applicants respectfully submit that there is clear support in the specification for the language, “automatically time-centering the physiological signal”, as described above herein for the rejection under 35 U.S.C. 112, first paragraph.

Therefore, in view of at least the foregoing and the fact that claims 4-6, 8, 9, and 11-17 depend either directly or indirectly from independent claim 1, it is respectfully submitted that claims 4-6, 8, 9, and 11-17 define allowable subject matter as well. Applicants respectfully request that the rejection of claims 4-6, 8, 9, and 11-17 under 35 U.S.C. 103(a) be removed.

In the current Office action, claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Esteller in view of Voelz and further in view of Igel et al. (US Patent No. 6,192,273), hereinafter Igel. The Examiner finds no recitation of “automatically time-centering a physiological signal” in Applicants’ specification and thus considers the Applicants’ argument moot.

Applicants respectfully traverse the foregoing rejections in view of the above pending claims and for reasons set forth hereafter.

As described above, Esteller and Voelz do not teach or suggest an adjusting unit for automatically time-centering a physiological signal with respect to the time dimension in a time window of predetermined window width in the time dimension as does the claimed invention of

claim 1. Furthermore, Igel does not teach or suggest an adjusting unit for automatically time-centering a physiological signal with respect to the time dimension in a time window of predetermined window width in the time dimension as does the claimed invention of claim 1.

Furthermore, Applicants respectfully submit that there is clear support in the specification for the language, "automatically time-centering the physiological signal", as described above herein for the rejection under 35 U.S.C. 112, first paragraph.

Therefore, in view of at least the foregoing, and the fact that claim 10 depends indirectly from independent claim 1, it is respectfully submitted that claim 10 defines allowable subject matter as well. Applicants respectfully request that the rejection of claim 10 under 35 U.S.C. 103(a) be removed.

Accordingly, the applicant respectfully requests reconsideration of the rejections and objections based on at least the foregoing. After such reconsideration, it is urged that allowance of claims 1-6 and 8-17 will be in order.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "David J. Muzilla", followed by a date "8-27-08" written in a similar cursive style.

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